

found to be associated to a significant degree with inferior progress. The correlation method also proved the absence of any relation between length of stay at the sanatorium and ultimate progress, but on the other hand indicated an appreciable relation between regularity of dispensary treatment and progress.

"There was no consistent evidence that bad housing conditions, as judged by rent, class of house, state of cleanliness of rooms, or overcrowding, had any influence on the patient's ultimate progress or rate of recovery."

The only explanation of this unexpected state of affairs that suggests itself to the authors is that the depressing psychological effects of a long period of enforced idleness in the company of patients similarly affected may in the

bulk of cases counteract or even outweigh the benefits arising from other factors, and that the continued effort to "carry on" at home may help in itself towards a mastery of the disease. The authors complete their memoir by stating that if their conclusions are sound it would be well to consider (1) whether the great inconvenience to themselves and their families inflicted upon many cases of phthisis by sending them as a routine procedure for long periods to sanatoriums is justified by the results, and (2) whether the sanatorium treatment should not be reserved for those in whom an unusual form of onset (for example, hæmoptysis) has made a very early diagnosis possible, those who are so ill as to require hospital treatment, or those whose circumstances demand their removal from home.

ENCEPHALO-MYELITIS FOLLOWING VACCINATION

IN the *British Journal of Experimental Pathology* for the present month appear summaries of the clinical histories, necropsies, and descriptions of the pathological changes found in seven cases of encephalo-myelitis regarding which the writers assert that "there can be no doubt that vaccination was a definite causal factor."

The attention of the writers, Dr. Paul Fildes and Professor McIntosh, was first drawn to this rare condition in 1912 by the histological changes found in the central nervous system in the case of a lad of fifteen who died from encephalo-myelitis following a recent vaccination. Not till ten years later did the opportunity occur to test, in a comparable case, the possibility of vaccination being the actual cause. In December, 1922, a girl, nine years old, came to necropsy, with the diagnosis of tuberculous meningitis, and the presence on the arm of two recent vaccination scabs. Histologically, the brain and cord showed the same peculiarities as the case noted ten years previously. Several other cases were shortly afterwards recognized, one in a man of twenty-one, the rest in girls

of seven, twelve, fifteen and twenty-two respectively. The close similarity in the type and incidence of the attack and its sequelæ in all cases was notable. They all followed a recent vaccination; all developed the same meningitic symptoms and all had the same general distribution of histological changes in the brain.

Elaborate efforts have been made to obtain positive proof of the connection between the vaccination and the encephalo-myelitis, or failing this, to exclude any other possible etiology. Close examination of the vaccinated areas and the regional glands yielded but little information, since the histological changes appeared to be essentially similar to those in a control case, a recently vaccinated boy killed in an accident. Though the path of infection could not be traced, the authors consider that they have ample justification for their conclusion in view of the close resemblance between the clinical histories, the uniformity of the pathological findings, and the absence of similar cases independent of vaccination. Death in six cases occurred between the fourteenth and eighteenth day after vaccination. Similar

cases independent of vaccination were not observed at the same or at any other time. In Holland eight cases occurred in 1925 during months when encephalitis was epidemic, and the suggestion was made that the vaccination may have provoked a latent encephalitis infection. Professor Turnbull and Professor McIntosh consider this unlikely. The fact that the virus of vaccinia is closely allied to if not identical with the virus of variola led them to search the literature for evidence of similar conditions complicating smallpox, and they have found a considerable number of cases of an apparently specific encephalo-myelitis clinically associated with that disease.

The importance of these investigations needs no emphasis. The *Lancet* (September 4, 1926) in an editorial draws

attention to them. It remains for practitioners to be on the alert to report anything whatever which may seem to bear upon this important problem in epidemiology.

Particular care must be given to the strain of the vaccinia in calves from which vaccine is taken. Any symptom pointing to the development of meningeal symptoms in the calf should call for the immediate destruction of all vaccine obtained from such a source. The dosage of vaccine used for each vaccination may also demand regulation. In addition it must be remembered by any one hesitating to employ vaccination that should an epidemic of smallpox take place the possibility of meningitic developments is more likely in true smallpox than in vaccinia.

ON DIET AND NUTRITION

PROFESSOR EDWARD MELLANBY, of Sheffield University, in a recent British Medical Association lecture, has again drawn attention to the important influence that diet has on general nutrition, and especially on that of the growing child. Modern experimental work, he said, in animals has brought to light the fact that a defective dietary induces definite pathological defects of structure and function in the body which may in later age produce very definite disability. A diet deficient in the fat soluble vitamins and containing relatively too much cereal has a destructive action on developing bones and teeth. Especially is this the case in countries with little sunshine and a minimum of ultra-violet radiation. Professor Mellanby stated that his investigations showed that notwithstanding the ordinarily accepted teaching a large proportion of the deciduous teeth of the children in England when examined microscopically were found to be defective in structure and to be particularly susceptible to caries, a condition which he regarded as certainly due to a diet deficient in the amount of the fat soluble vitamins which

are found in milk, eggs, butter, and especially in cod liver oil, and containing an excess of cereal and particularly of oatmeal. Especially is this the case in children living in dark alleys and thus deprived of much sunlight. Mellanby insisted that the widespread development of caries in children's teeth is primarily a problem of defective feeding, and asserted that the same dietetic factors which interfere with the nutrition and development of the teeth in the growing infant will, if persisted in after the teeth are erupted, favour the development of caries.

It is now also a generally accepted proposition that the feeding and nutrition of a mother during pregnancy has an important influence on the nutrition of the offspring. The ability possessed by the maternal organism of sacrificing her tissues for the supply of the fundamental nutriment of the developing foetus is very great. There is, however, definite evidence that the mal-nourished to a much greater extent than a starved maternal organism will transmit undesirable weaknesses to her offspring, leading to the development in them of rachitic and